

# New Bridges for Railway Gauge-Clearance



## Client

Various Contractors for Network Rail

## Project Description

In recent years Network Rail has commissioned many projects to improve the headroom clearance to structures over the tracks either for freight trains or to accommodate new wire lines for electrification. Since 2007 Cass Hayward has been involved in nearly 40 separate projects leading to 25 new overline bridges being constructed to our designs. Eight projects have not yet been implemented and temporary works design has been completed for a number of other projects. Most of the bridge reconstructions have been for highway bridges with special challenges associated with dimensional constraints, site restrictions and existing services.

## Cass Hayward Role(s)

- Options studies
- Design of new and reconstructed underline bridges
- Design of demolition schemes for existing bridges
- Design and checking of temporary works

## Projects Statistics

- Six footbridge reconstructions including one at Thatcham Station
- Eight online highway bridge deck reconstructions of single and multiple masonry arches using precast concrete portal structures
- Five online highway bridge deck reconstructions of up to three spans using slender filler beam decks with steel or concrete soffits
- Three offline highway bridge replacements using slender filler beam decks made integral with new foundations
- Three short span deck reconstructions using precast concrete flat slabs.

## Special Features

- All new bridges were designed to minimise deck construction depth so as to minimise required works on the approaches
- New road alignments were designed for all the highway bridges often working at the limit, or beyond, normal vertical crest curve criteria
- New bridges required design of either new foundations or modifications to existing retained substructures and foundations.
- All designs were developed to minimise demolition and to suit rapid installation of new offsite manufactured components as driven by severe time limitations for site activities during track possessions.